July 2, 1940. J. B. GRAHAM ET AL 2,206,184

STABBING GUIDE

Filed March 21, 1939 2 Sheets-Sheet 1

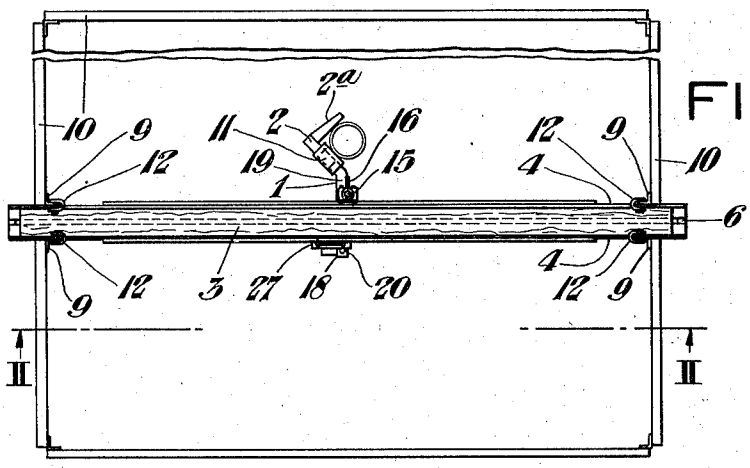

FIG. 1.

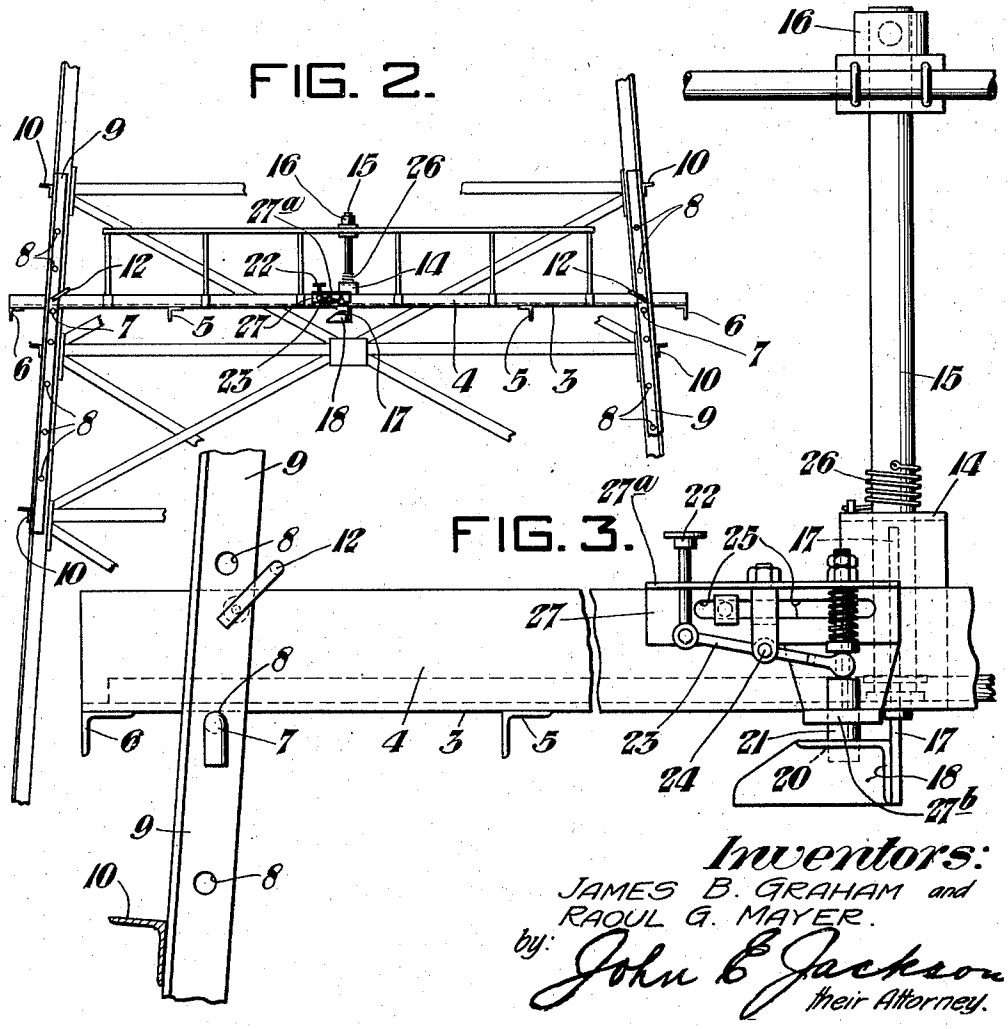

FIG. 2.

FIG. 3.

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FIG. 4.

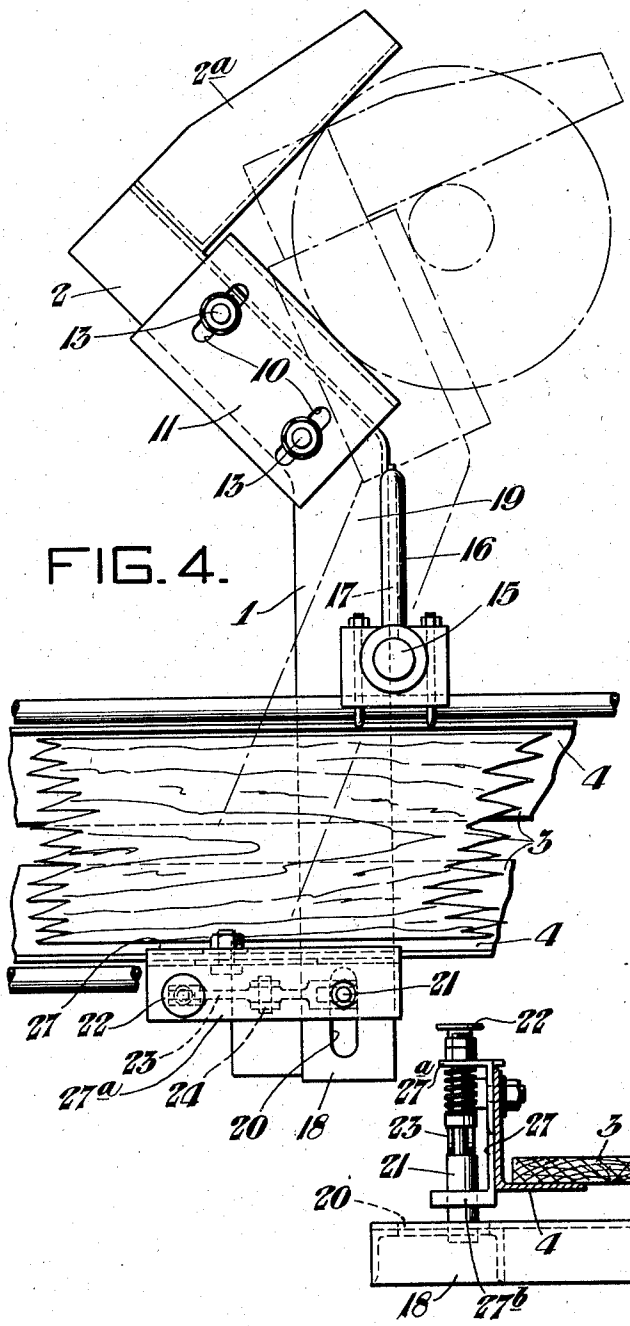
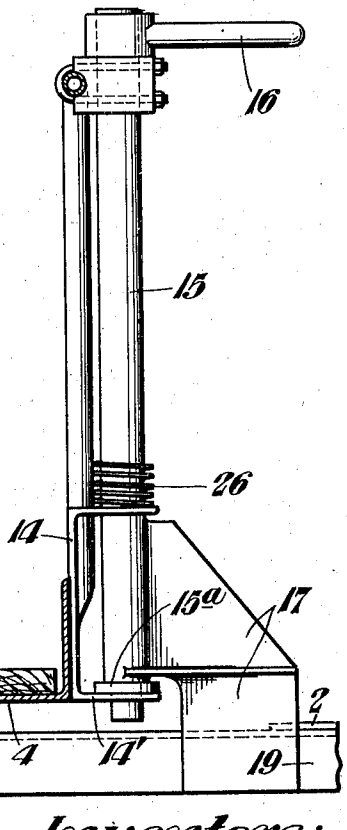


FIG. 5.



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UNITED STATES PATENT OFFICE

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STABBING GUIDE

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3 Claims. (Cl. 255—1)

This invention relates to apparatus for guiding and stabbing successive sections of oil or gas well casing prior to running them into the drilled hole or well and more particularly to apparatus for centering and holding steady the casing while being aligned with and joined to a preceding section by a screw or weld connection.

In setting casing in a well, it is the customary practice to lift it in the derrick by means of a rope or cable passing through pulleys to a power operated winding drum. The lifting rope is fastened to one end of the casing section, so that, in the latter's elevated position, it is suspended lengthwise in the air. These lifting ropes are not so located as to permit the casing to hang centrally in the derrick to enable easy alignment of the casing with the preceding casing section, but tend to pull the casing toward one side or one corner of the derrick. This requires skillful operation to bring the casing section into vertical alignment with the preceding section in the hole to which it is to be joined by a screw or weld connection and to hold it in position during the forming of the joint.

One object of this invention is to provide means for maintaining the casing steady at the top and permitting it to be held firmly while being connected to an adjoining section in a well.

A further object of this invention is to provide means for aligning a section of casing with that in the well to enable easy stabbing and connecting thereto.

Other objects and advantages will become apparent as the description proceeds, in which:

Figure 1 is a top view of the present invention;

Figure 2 is a section on line II—II of Figure 1;

Figure 3 is an enlarged detailed elevation of the mechanism for centering and holding the suspended section of casing being aligned with that in the well;

Figure 4 is an enlarged detailed view of the guiding mechanism; and,

Figure 5 is a transverse section through the supporting mechanism and the platform.

By the term "stabbing" is meant the operation of registering one end of a pipe joint with another, particularly in a threaded joint, where the threads of the male and female ends must be matched correctly before screwing together to avoid damage to the threads.

The apparatus of this invention may be considered as made up of two separate members each varying in type of construction and usable in different combinations; that is a guiding and retaining or steadying member in combination with a supporting carriage. While the two members lend themselves to different forms of construction and combinations, the general purpose of each is identical.

The guiding member or steady rest forming part of the present invention comprises a structural member 1 provided with two legs 2 and 2^a formed thereon, which legs provide a V-shaped supporting surface having, if desired, an included angle of 90 degrees. However, this is only illustrative and need not be restricted to this particular design nor to any specified degree angle. Regardless of the degree of angle included between the two sides or legs 2 and 2^a of said guide or steady rest 1, which remains constant, it will be found that with this type of guide, adjustments for different diameters of casing and the location of the center line of drilled hole can be made more easily and further, that such a construction requires minimum handling of the equipment.

Secured to one of the legs of the guide or steady rest is a plate 11, provided with slots 10 through which threaded bolts 13 may pass to hold said plate 11 in its adjusted position. By providing the adjustable plate 11 on one leg of said structural member and moving said plate parallel to the other leg of said guide, it is possible to adjust the guide to compensate for variations in pipe diameters. By movement of the plate 11, the vertex of the angle formed by the two legs can be moved to a point that will bring the bi-secting line of the included angle through the projected center of the casing in the hole.

The supporting carriage for the guide or steady rest 2 may be of varied construction, and a specific example of a desired supporting carriage construction is shown in the drawings. These carriages are supported by a platform 3 which is known as a "stabbing board" to which the rotative type of guiding apparatus hereinabove described is attached. The platform 3 is supported by commercial steel angles 4, having their horizontal legs facing each other to serve as a support for the platform. These angles 4 are rigidly held in spaced relation by the angles 5 and 6. This platform is adapted to be supported by the bolts 7, which pass through spaced openings 8 of angles 9, which are fastened to the derrick girts 10 on opposite sides of said derrick. By providing the plurality of spaced openings 8, it is possible to remove the bolts 7 and adjust the position of the platform to the desired height by insertion of the bolts in the desired openings 8. The platform 3 is retained in position by clamps 12,

as clearly illustrated in Figures 1 and 3. The platform 3, which is supported by the horizontal legs of the members 4, affords a footing for the operator to stand upon and, to assist in the safety of the operator, there is secured to one of the vertical legs of the member 4, a guard railing of conventional design.

A channel-shaped structural member 14 is secured to the vertical leg of one of the members 4 in any conventional manner, as clearly shown in Figure 5. The horizontal flanges of the channel-shaped member 14 are provided with aligned openings for rotatably receiving the column or shaft 15. Upon the lower flange 14' of the channel-shaped member 14, the collar 15a formed on the end of the column 15 is adapted to rest so as to provide a bearing surface for the column 15 when it is rotated. The upper end of the column 15 is held, in any conventional manner, by the horizontal guard rail secured to the vertical leg of member 4, while a handle 16 is secured to the end of the shaft or column 15 so as to afford means for causing rotation of the shaft or column 15. The lower end of the shaft 15 between the flanges of the channel-shaped member 14 is securely attached to a bracket 17, so that said bracket will rotate with the shaft.

Extending from the bracket 17 are radially projecting arms 18 and 19, which in turn rotate as a unit with said bracket on the axis of shaft 15. The free end of the arm 19 is attached to one of the guiding members above described to center and hold the suspended section of casing being aligned with that in the well.

The arm 18 has, at its outer end, a slot 20 through which is adapted to extend pin 21 of a locking mechanism for holding the steady rest or guide 2 in set position. The locking and releasing device includes a bracket 27 secured, in any conventional manner, to the vertical leg of the member 4 and is provided with outwardly extending flanges 27a and 27b having apertures through which the pin 21 is adapted to extend and through which the extension of the pedal protrudes. Pivotally mounted upon this bracket 27, in any conventional manner, as indicated at 24, is a lever 23 connected at one end to the pedal 22 and having connection with the pin 21. A spring surrounding the pin 21 beneath the flange 27a exerts a downward pressure thereon so as to retain it in locking position from which it is released by downward pressure on the pedal 22. The locking device as a unit is held to the angle members 4 and is provided with a slot through which the fastening means may pass. This permits movement of the locking mechanism to whatever position is required for registration of the pin 21 with the slot 20 depending on the position required for the steady rest which, of course, is governed by the size of the casing being sunk. Upon release of the locking mechanism, the steady rest or guide is removed to its inoperative position and held there by a spring 26 on shaft 15, which spring is under tension when the apparatus is in guiding location.

In operation, the supporting carriage is moved to operating position, as shown in the drawings, and the guiding member adjusted for alignment of the size of casing to be run with the center of the drill hole or casing already set. A section of casing is now suspended in the derrick. The lower end is seized and pulled toward the casing end projecting from the drilled hole. At the same time, the operator on the stabbing platform maneuvers the upper end into the notch of the guide and steady rest. The pull of the ropes from the side or a corner of the derrick, where the cathead is located, firmly seats the casing in the notch of the guide, which being in alignment with the casing already run in the drilled hole, permits quick and accurate stabbing and spinning of the threaded joint or welding of the two sections.

While we have shown and described specific embodiments and their combination of the present invention, it will be seen that we do not wish to be limited exactly thereto, since various modifications may be made without departing from the scope of the invention, as defined by the following claims.

We claim:

1. An apparatus for guiding and stabbing successive sections of pipe comprising a guide including a structural member provided with two legs forming a substantially V-shaped supporting surface, a plate adjustably carried by one of said legs so that upon movement of said plate, the vertex of the angle formed by the two legs can be varied for centering different sizes of pipe.

2. A pipe guiding and stabbing apparatus in combination with a supporting carriage, said guide comprising a structural member having a V-shaped supporting surface, an adjustable plate carried by said structural member for varying the angles of the notch for centering different sizes of pipe, a platform connected to said guide and means on said platform cooperating with said guide for holding said guide in position.

3. A pipe guiding and stabbing apparatus in combination with a supporting carriage, said guide comprising a structural member having a V-shaped supporting surface, an adjustable plate carried by said structural member for varying the angle of the notch for centering different sizes of pipe, a platform connected to said guide, means on said platform cooperating with said guide for holding said guide in position and means for releasing said guide whereby said guide may be moved to an inoperative position.

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